**COMMONWEALTH OF VIRGINIA**
**Department of Environmental Quality**
**Blue Ridge Regional Office**

# STATEMENT OF LEGAL AND FACTUAL BASIS

Babcock & Wilcox Nuclear Operations Group Inc. - Mt Athos Site
Campbell County, Virginia
Permit No. BRRO-30260

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Babcock & Wilcox Nuclear Operations Group Inc. - Mt Athos Site has applied for a Title V Operating Permit for its Campbell County, Virginia facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Air Permit Contact:_____ Date: Draft
Keith Sandifer
(434) 582-6232

Air Permit Manager:_____ Date: Draft7

Regional Director:_____ Date: Draft

## FACILITY INFORMATION

Permitee
Babcock & Wilcox Nuclear Operations Group Inc. - Mt Athos Site
P. O. Box 785
Lynchburg, VA 24505-0785

Facility
Babcock & Wilcox Nuclear Operations Group Inc. - Mt Athos Site
P. O. Box 785
Lynchburg, VA 24505-0785

County-Plant Identification Number: 51- 031-0006

## SOURCE DESCRIPTION

NAICS Code: 332410 –Power Boiler and Heat Exchanger Manufacturing

The major activity at this facility is the production and assembly of unirradiated enriched uranium elements into nuclear reactors or fuel modules for power, propulsion, and research applications. This facility is primarily a metal fabricator, which involves the fabrication of metal components from stock metal through various machining process, welding, grinding, pickling, cleaning, and final assembly. Secondary to this is the recovery of uranium fuel, uranium downblending, and the research and development of uranium fuel manufacturing techniques. In addition, B&W operates nuclear environmental testing laboratories (SIC 8734) for both research and development and for commercial purposes. Support facilities at this facility include a steam plant, a water treatment plant, and a wastewater treatment plant.

The facility is a Title V major source of nitrogen oxides. This source is located in an attainment area for all pollutants, and is a PSD minor source. The facility is a synthetic minor HAPS source. The facility was previously permitted under Minor NSR permits issued October 2, 1995, September 12, 1997, September 23, 2002, June 18, 2002 (superseded March 31, 2000 and June 12, 1998 permits), December 23, 2004 (superseded permit dated October 28, 1999), and a State Operating Permit issued June 4, 2007.

## COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit on May 16, 2012, was conducted on May 16, 2012. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

**EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION**

The emissions units at this facility consist of the following:

See Title V Permit Condition II.

**EMISSIONS INVENTORY**

A copy of the 2011 annual emission update is attached. Emissions are summarized in the following tables.

2011 Actual Emissions

| | 2011 Criteria Pollutant Emissions in Tons/Year | | | | |
|---|---|---|---|---|---|
| Emission Unit | VOC | CO | $SO_2$ | $PM_{10}$ | $NO_x$ |
| EU-B-1 &Eu-B-2 | 0.2 | 2.6 | 0.02 | 0.2 | 3.1 |
| EU-10-9 & EU-10-10 | | | | | 0.04 |
| EU-15A-1 | | | | | |
| EU-8A-1 | 0.3 | | | | |
| EU-FUGTV-1 | 17.9 | | | | |
| EU-5A-1 to EU-5A-6 & EU-5A-8 to EU-5A-16 | | | | | 35.4 |
| EU-13A-1 & EU-14A-1 to EU-14A-4, EU-14A-17, EU-14A-19 and EU-14A-10 | | | | | 0.03 |

| | | | | | |
|---|---|---|---|---|---|
| Total | 18.4 | 2.6 | 0.02 | 0.2 | 38.6 |

2011 Facility Hazardous Air Pollutant Emissions

| Pollutant | 2011 Hazardous Air Pollutant Emissions in Tons/Yr |
|---|---|
| HCL | 0.06 |
| HF | 0.06 |

**EMISSION UNIT APPLICABLE REQUIREMENTS – III Boilers EU-B-1 and EU-B-2**

**Limitations**

Both boilers are existing boilers. The boilers are not NSPS Subpart Dc affected facilities. The boilers are not subject to the area source Boiler MACT (JJJJJJ), because they only burn natural gas with fuel oil only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel (40 CFR 63.11195 (e)). Periodic testing on liquid fuel shall not exceed a combined total of 48 hours during any calendar year. The particulate matter limits are derived from the standards in 9 VAC 5-40-900 A and the sulfur dioxide limits are derived from the standards in 9 VAC 5-40-930 A. Since the approved fuel for these boilers is natural gas with distillate oil as a standby or emergency fuel, it is expected that the emissions will be well below the existing source standards.

Fuel sulfur is indirectly limited because ASTM standards for 1 and 2 required less than or equal to 0.5% sulfur (by wt.) in the distillate oil. The max allowable $SO_2$ emissions are limited by 9 VAC 5-40-930 to 2.64K, where K is the boiler's maximum heat input capacity in MMBtu/hr. Since each boiler is approved to burn distillate oil, the maximum $SO_2$ emissions are calculated to be 13.6 lb/hr for each boiler, which is well below the regulatory limit of 70.0 lb/hr[1].

The maximum allowable PM emissions are limited by to 10 lb/hr by 9 VAC 5-40- 900 A.1.b. The boilers are limited to distillate oil and natural gas, so the maximum PM emissions have been calculated to be 0.6 lb/hr[2].

1 SO2 emissions factor from AP-42, Section 1.3, Fuel Oil Combustion, Table 1.3-1, 5/10, is 142S lb/1000 gallons combusted, where S is the % sulfur (by wt.). $SO_2$ maximum hour emissions (142 $lb_{SO2}$/k gal x 0.5%S x 26.5 MMBtu/hr)/(138,000Btu/gal) x 1000 gal= 13.6, $SO_2$ allowable emission 2.64 x 25.6 = 70.0 lb/hr.

2 PM emissions factor from AP-42, Section 1.3, Fuel Oil Combustion, Table 1.3-1, 5/10, is 3.3 lb/1000 gallons combusted (2 for filterable and 1.3 for condensable). PM maximum hour emissions (3.3 lb/k gal x 26.5 MMBtu/hr / 138,000 But/gal X 1000 gal) = 0.6 lb/hr.

Condition III. A.1. limits the approved fuels to natural gas and distillate oil.

Condition III.A.2. limits the opacity to 20 percent opacity except during one six-minute period in any one hour in which the visible emissions shall not exceed 60 percent opacity.

Condition III.A.3. requires the boilers to be operated and maintained properly and the boiler operators be trained in the proper operation of the boilers.

**Monitoring and Recordkeeping**

Condition III.B. contains the opacity periodic monitoring. Monitoring of visible emissions will be required of the source to make an observation of the boiler stack (VS-B-1) at least one time per week, when the boiler is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective action. If the boiler has not operated during the week, this fact shall be noted in the log, and that the visible emission observation was not required. Also, if visible emissions have been conducted for 12 consecutive weeks and no visible emissions are seen, the permittee may reduce the monitoring frequency to once per month for the stack.

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include the annual throughput of natural gas and distillate oil, the F-factor, pollutant specific emission factors, and emission equations for the two B&W boilers. A statement that the distillate oil complies with the ASTM specifications for fuel oil numbers 1 or 2. Records shall be available on site for inspection by the DEQ and be current for the most recent 5 years

Both the expected $SO_2$ and PM emissions are well below the allowable, so documentation that the fuel combusted is distillate oil or natural gas, recording the amounts used, and opacity periodic monitoring is sufficient monitoring for the two boilers.

The permit does not require source tests. These boilers burn only natural gas with distillate oil as backup fuel. Based on AP-42 emission factors for distillate oil and natural gas, it is expected that the particulate matter and sulfur dioxide emissions will be well below the Rule 4-8 standards. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

**EMISSION UNIT APPLICABLE REQUIREMENTS - IV. Bakeoff/replenishing tank - EU-10-10**

**Limitations**

Condition IV.A.1. contains the requirement that the bakeoff/replenishment tank be controlled by a scrubber with a flow meter and differential pressure indicator through the scrubber. This condition is taken from the NSR permit issued September 12, 1997.

Condition IV.A.2 limits the annual amount of spent acid solution evaporated. This condition is taken from the NSR permit issued September 12, 1997.

Condition IV.A.3. contains the notification requirements for a malfunction of the facility or related air pollution equipment that may cause excess air emissions. This condition is taken from the September 12, 1997 NSR permit.

Condition IV.A.4. contains the measures that the source is required to take to minimize the duration and frequency of excess emissions per the September 12, 1997 NSR permit.

In this process the spent acid solution, which contains hydrochloric acid and hydrofluoric acid, is heated to 120 to 130º F to reduce the volume over a period of several days. They can evaporate up to 5.086 gallons of this solution per hour. They are limited to an annual evaporation of 44,300 gallons per year of spent acid solution. HCl and HF will evaporate in proportion to their concentration in the spent solution. HCl concentration is 0.07298 lb/gal and HF is 0.0151 lb/gal. The control efficiency for both HCL and HF is 90%. Therefore to calculation emissions from throughput just use throughput X the concentration X (1-control efficiency of 90%).

**Monitoring and Recordkeeping**

Condition IV.B. includes requirements for maintaining records of all monitoring and testing required by the permit. These records include requirements per the September 12, 1997 NSR permit.

This unit is not subject to CAM, because the unit is not subject to an emissions limitation or standard.. Uncontrolled HF emissions would be 1.6 tons/yr and HCl emissions would be 3.4 tons/yr.

Monitoring the flow and differential pressure and keeping records of the yearly evaporation is sufficient monitoring for this process.

**Testing**

Condition IV.C. does not require source tests, but does require the facility to be constructed to allow emissions testing. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

**EMISSION UNIT APPLICABLE REQUIREMENTS - V. Uranium Metal Dissolvers EU-15A-1**

**Limitations**

Condition V.A.1. contains the control equipments and scrubber control parameters. This condition is taken from the NSR permit issued December 23, 2004.

Condition V.A.2. contains the opacity limitations from the NSR permit issued December 23, 2004. The condition applies at all times except startup, shutdown, and malfunction.

Condition V.A.3. contains the measures that the source is to take to minimize the duration and frequency of excess emissions per the NSR permit issued December 23, 2004.

Condition V.A.4. contains the nitrogen oxide emission limitations. This is taken from the NSR permit issued December 23, 2004.

The uranium metal dissolution process involves the use of nitric acid to dissolve the uranium. Nitrogen dioxide is released during the dissolution. Each dissolver can process 20 kg (44 lbs) of uranium per 12 hours (176 lbs for 4 dissolvers). Stoichiometrically, 1.17 pounds of nitrogen dioxide is produced for each pound of uranium processed. Therefore, there will be an uncontrolled emission rate of 34.3 lbs (176 lbs / 12 hours X 1.17 lbs $NO_2$/lb U X 2 for peak dissolution per hour and 75.2 tons/yr (176 lbs uranium/batch X 2 batches/day X 365 X 1.17 lbs $NO_2$/lb U / 2000 lb/ton) of nitrogen dioxide. The $NO_2$ emissions are controlled by a scrubber with a $NO_2$ removal efficiency of 60% as BACT. $NO_2$ emissions are calculated as follows: $NO_2$ emissions (in tons) = Tons of dissolved uranium X 1.17 lb $NO_2$/lb U X (1 60%).

CAM
Uncontrolled NOx emissions are 75.3 tons/yr[3]. CAM is not required for this process.

**Monitoring and Recordkeeping**

Condition V.B.1. states that the ejector/scrubber system (PC-14A-2 and PC-14A-3) shall be equipped with devices to continuously measure the ejector/scrubber liquid flow rate and the differential pressure drop across the ejector/scrubber and the ejector/scrubber liquid pH. This requirement was taken from the NSR permit issued 12/23/2004.

Condition V.B.2. requires each pressure drop meter used to continuously measure pressure drop, each liquid flow rate meter, and liquid pH meter to be observed by the permittee with a frequency of not less than once per day to ensure good performance of the ejector/scrubber

3 From application page A-15

system. This is sufficient monitoring for $NO_2$.

Condition V.C. contains the opacity periodic monitoring. Monitoring of visible emissions will be required of the source to make an observation of the uranium metal dissolvers (EU-15A-1) stack (VS-14A-4) at least one time per week, when the units are operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective action. If the unit has not operated during the week, this fact shall be noted in the log, and that the visible emission observation was not required. Also, if visible emissions have been conducted for 12 consecutive weeks and no visible emissions are seen, the permittee may reduce the monitoring frequency to once per month for the stack.

Opacity monitoring required by current permit has not shown this to be a source of VE and therefore continued use of monitoring at the same frequency is sufficient monitoring.

Condition V.D. contains the recordkeeping requirements for the uranium metal dissolvers (EU-15A-1). These are taken from the NSR permit issued 12/23/2004.

**Testing**

Condition V.E. required that the facility be constructed to allow for emissions testing and upon request from the DEQ, test ports be provided at the appropriated locations.

The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

**Reporting**

The only reporting that is required is stated in the General Conditions.

**EMISSION UNIT APPLICABLE REQUIREMENTS - VI. Rotary Calciner – EU-13A-3**

This unit is not located at a mineral processing plant and therefore not subject to NSPS UUU – Standards of Performance for Calciners and Dryers in Mineral Industries. The unit is used to calcine solids containing recoverable amounts of uranium metal. The uranium-bearing residue is then processed to extract the uranium for reuse. "Materials recovery units that combust waste for the primary purpose of recovering metal" are exempt from the provisions of Article 45 per 9 VAC 5-40-6250 C.8.

**Limitations**

Condition VI.A.1 contains the particulate emissions control equipment. This condition is taken from the NSR permit issued June 18, 2002.

Condition VI.A.2 requires that the scrubber be equipped with devices to continuously measure pressure drop and that it be operated properly. This condition is taken from the NSR permit issued June 18, 2002.

Condition VI.A.3. limits the amount of general scrap that can be processed. This condition is taken from the NSR permit issued June 18, 2002.

Condition VI.A.4. contains the opacity limitations of 5% from the NSR permit issued June 18, 2002

Condition VI.A. 5 contains the measures that the source is to take to minimize the duration and frequency of excess emissions per the NSR permit issued June 18, 2002

Using emission factor for highest PM emissions, the emission factor is 15 lb/ton. The unit can process 52.91 lb/hr. Therefore the maximum uncontrolled PM/PM10 emissions would be -1.74 tons/yr (15 lb/ton X 52.911 lb/hr-/ 2000 lb/ton X 8760 hr/yr / 2000 lb/ton). This unit is controlled by a cyclone, an electric afterburner, a fixed throat venturi scrubber, and mist eliminator. PM/PM10 control is estimated to be at least 80%.

**CAM**

Uncontrolled PM emissions are less than 2 tons per year. CAM is not required.

**Monitoring and Recordkeeping**

Condition VI.B. contains the opacity periodic monitoring. Monitoring of visible emissions will be required of the source to make an observation of the rotary calciner (EU-13A-3) stack (VS-13A-2) at least one time per week, when the unit is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective action. If the unit has not operated during the week, this fact shall be noted in the log, and that the visible emission observation was not required. Also, if visible emissions have been conducted for 12 consecutive weeks and no visible emissions are seen, the permittee may reduce the monitoring frequency to once per month for the stack.

Opacity monitoring required by current permit has not shown this to be a source of VE and

therefore continued use of monitoring at the same frequency is sufficient monitoring.

Condition VI.C. contains the recordkeeping requirements from the NSR permit issued June 18, 2002 and the opacity monitoring recordkeeping.

**Testing**

The permit does not require source tests, but Condition VI.D. requires that the facility be constructed to allow for emissions testing per the NSR permit issued on June 18, 2002. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

**Reporting**

Condition VI.E. contains the reporting requirements from the NSR permit issued June 18, 2002.

**EMISSION UNIT APPLICABLE REQUIREMENTS – VII. CRF 6" Centorr Finishing Furnace – (EU-13A-2) and ThermoCraft Vertical Tube Furnaces – (EU-12A-3A and EU-12A-3B)**

**Limitations**

Condition VII.A.1. contains the control equipment. This condition is taken from the State Operating Permit issued June 4, 2007.

Condition VII.A.2 requires that the scrubber be equipped with devices to continuously measure the scrubber liquid flow rate and pressure drop and that it be operated in accordance with approved procedures which include, as a minimum, the manufacturer's written requirements or recommendations. This condition is taken from the State Operating Permit issued June 4, 2007.

Condition VII.A.3. and 4 contain the hydrogen chloride emissions limits from each of the furnaces. These conditions are taken from the State Operating Permit issued June 4, 2007.

Condition VII.A.5 contains the opacity limitations from the State Operating Permit issued June 4, 2007.

Condition VII.A.6. contains the measures that the source is to take to minimize the duration and frequency of excess emissions per the State Operating Permit issued June 4, 2007.

Condition VII.A.7 requires that the facility have available written operating procedures for related air pollution control equipment, that operators be trained, and records be kept of the training. This condition is taken from the State Operating Permit issued June 4, 2007.

This permit was a State Operating Permit issued to limit the hydrogen Chloride (HCl) emissions from two ThermaCraft vertical tube finishing furnaces (EU-12A-3A and EU-12A-3B) to 0.01 lb/hr HCl (.09 tons/yr total) each and one Centrorr finishing furnace (EU-13A-2) to 0.05 lb/hr HCl (0.2 tons/yr).

**CAM**

Uncontrolled HCl emissions from the Centorr finishing furnace (EU-13A-2) is 8.95 tons/yr and from each ThermaCraft vertical tube finishing furnace (EU-12A-3A or EU-12A-3B) is 5.8 tons/yr. CAM is not required.

**Monitoring and Recordkeeping**

Condition VII.B.1. requires the permittee to observe the flow meter and the pressure drop meter with a frequency of not less than once per day and requires that a log of the observations be kept.

Condition VII.B.2. contains the opacity periodic monitoring. Monitoring of visible emissions will be required of the source to make an observation of the finishing furnaces (EU-12A-3A, EU-12A-3B, and EU-13A-2) stack (VS-14A-3) at least one time per week, when the unit is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective action. If the unit has not operated during the week, this fact shall be noted in the log, and that the visible emission observation was not required. Also, if visible emissions have been conducted for 12 consecutive weeks and no visible emissions are seen, the permittee may reduce the monitoring frequency to once per month for the stack.

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include the yearly throughput of uranium through the furnaces, consumption of chlorine, annual emissions of hydrogen chloride, and results of the weekly observations of the furnace and is sufficient monitoring.

**Testing**

The permit does not require source tests, but Condition VII.D. requires that the facility be constructed to allow for emissions testing per the State Operating Permit issued June 4, 2007. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

**Reporting**

Condition VII.E. contains the reporting requirements from the State Operating Permit issued June 4, 2007.

**EMISSION UNIT APPLICABLE REQUIREMENTS – VIII. Dye Check Room – EU-8A-1**

**Recordkeeping and Monitoring**

Condition VIII.A. states the recordkeeping requirements. The only regulatory requirement for the Dye Check Room is that the owner shall keep records as may be necessary to determine emissions (9 VAC 5-40-50F). Recordkeeping of the throughput of VOCs is sufficient monitoring for actual VOC emissions determination from the Dye Check Room.

**Testing**

The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

**EMISSION UNIT APPLICABLE REQUIREMENTS – IX. General Cleaning of Metal Components – EU-FUGTV-1**

**Recordkeeping**

Condition IX.A. contains the cleaning materials recordkeeping requirements. The only regulatory requirement for general cleaning of metal components is that the owner shall keep records as may be necessary to determine emissions (9 VAC 5-40-50F). Recordkeeping of the throughput of VOCs is sufficient monitoring for VOC emissions determination from the general cleaning of metal.

**EMISSION UNIT APPLICABLE REQUIREMENTS – X. Pickling Tanks – EU-5A-1 to EU-5A-6 and EU-5A-8 to EU-5A-16**

**Limitations**

Condition X.A. contains the opacity limitations for existing sources from 9 VAC 5-40-80.

**CAM**

This process is not subject to CAM. Even though there is a scrubber for the NOx and HF emissions, there is no emission limitation or standard for NOx or HF emissions from this unit.

**Monitoring and Recordkeeping**

Condition X.B. contains the opacity periodic monitoring. Monitoring of visible emissions will be required of the source to make an observation of the Bay 5A stack (VS-4-1) at least one time per week, when the pickling tanks are operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective action. If the pickling tanks have not operated during the week, this fact shall be noted in the log, and that the visible emission observation was not required. Also, if visible emissions have been conducted for 12 consecutive weeks and no visible emissions are seen, the permittee may reduce the monitoring frequency to once per month for the stack.

Opacity monitoring required by current permit has not shown this to be a source of VE and therefore continued use of monitoring at the same frequency is sufficient monitoring.

Condition X.C of the permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include the annual amount of material processed sufficient to calculate nitrogen dioxide and HF emissions and results of the weekly visual observations.

**EMISSION UNIT APPLICABLE REQUIREMENTS – XI. Pickling Tank – EU-10-9**

**Limitations**

Condition XI.A. contains the opacity limitations for existing sources from 9 VAC 5-40-80 and 9 VAC 5-40-320.

**Monitoring and Recordkeeping**

Condition XI.B. contains the opacity periodic monitoring. Monitoring of visible emissions will be required of the source to make an observation of the Bay 10 stack (VS-9-1) at least one time per week, when the pickling tank is operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective action. If the pickling tank has not operated during the week, this fact shall be noted in the log, and that the visible emission observation was not required. Also, if visible emissions have been conducted for 12 consecutive weeks and no visible emissions are seen, the permittee may reduce the monitoring frequency to once per month for the stack.

Opacity monitoring required by current permit has not shown this to be a source of VE and therefore continued use of monitoring at the same frequency is sufficient monitoring.

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include the annual amount of material processed sufficient to calculate nitrogen dioxide and HF emissions and results of the weekly visual observations.

**EMISSION UNIT APPLICABLE REQUIREMENTS – XII. Dissolvers EU-13A-1, EU-14A-1 to EU-14A-4, EU-14A-17, and U-14A-19**

**Limitations**

Condition XII. A.1. contains the opacity limitation for new sources (EU-14A-17 and EU-14A-19) from 9 VAC 5-50-80 and 290, New Source Standard for Visible Emissions.

Condition XII.A.2. contains the opacity limitations for existing sources (EU-13A-1, EU-14A-1 to EU-14A-4) from 9 VAC 5-40-80 and 9 VAC 5-40-320.

**Monitoring and Recordkeeping**

Condition XII.B. contains the opacity periodic monitoring. Monitoring of visible emissions will be required of the source to make an observation of the dissolvers stack (VS-14A-1) at least one time per week, when the dissolvers are operating. They are to observe for the presence of visible emissions from the stack. If visible emissions are observed, the permittee will have to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions compliance. The permittee will keep a log of observations, any VEE recordings, and any corrective action. If the dissolvers have not operated during the week, this fact shall be noted in the log, and that the visible emission observation was not required. Also, if visible emissions have been conducted for 12 consecutive weeks and no visible emissions are seen, the permittee may reduce the monitoring frequency to once per month for the stack.

Opacity monitoring required by current permit has not shown this to be a source of VE and therefore continued use of monitoring at the same frequency is sufficient monitoring.

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include the annual amount of uranium processed and emissions equations sufficient to calculate nitrogen dioxide and HF emissions and results of the weekly visual observations.

**EMISSION UNIT APPLICABLE REQUIREMENTS – XIII. Emergency Generators**

| Unit ID | Date of Manufacture | Date of Installation | Rated Capacity (kW) | Rated Capacity (hp) | Applicable Federal Requirements |
|---|---|---|---|---|---|
| Group 1 | | | | | |
| EU-01-01 | 1982 | 1982 | 370 | 503 | 40-CFR 63 Subpart ZZZZ |
| EU-01A-13 | 2004 | 2004 | 685 | 1027.5 | 40-CFR 63 Subpart ZZZZ |
| EU-10A-01 | 2003 | 2003 | 400 | 535 | 40-CFR 63 Subpart ZZZZ |
| | | | | | |
| Group 2 | | | | | |
| EU-BC-03 | 2010 | 2012 | 800 | 1214 | 40 CFR 60 Subpart IIII<br>40-CFR 63 Subpart ZZZZ |
| EU-FF-01 | 2010 | 2010 | 800 | 1214 | 40 CFR 60 Subpart IIII<br>40-CFR 63 Subpart ZZZZ |
| | | | | | |
| Group 3 | | | | | |
| EU-B1-01 | 2002 | 2002 | 200 | 325 | 40-CFR 63 Subpart ZZZZ |
| EU-BC-06 | 1988 | 1988 | 150 | 230 | 40-CFR 63 Subpart ZZZZ |
| EU-MM2-02 | 1980 | 1980 | 200 | 235 | 40-CFR 63 Subpart ZZZZ |
| EU-AMB-01 | 1981 | 1981 | 100 | 166 | 40-CFR 63 Subpart ZZZZ |
| EU-LL-05 | 4/22/2006 | 2006 | 200 | 325 | 40-CFR 63 Subpart ZZZZ |
| EU-BD-04 | 2001 | 2001 | 188 | 219 | 40-CFR 63 Subpart ZZZZ |
| EU-WT-01 | 2/1977 | <1998 | Fire Pump | 310 | 40-CFR 63 Subpart ZZZZ |
| EU-WT-01 | 7/1975 | <1998 | Fire Pump | 310 | 40-CFR 63 Subpart ZZZZ |
| | | | | | |
| Group 4 | | | | | |
| EU-DN-01 | 2011 | 2012 | 450 | 689 | 40 CFR 60 Subpart IIII<br>40-CFR 63 Subpart ZZZZ |

Emergency generators are grouped by date of manufacture and rated capacity.

Groups 2 and 4 are subject to 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. All four groups are subject to the requirements of 40 CFR 63, Subpart ZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

**Limitations**

Conditions XIII.A. 1. and 2. include NSPS IIII applicable requirements. Conditions XIII.A. 3. 4. and 5. include MACT ZZZZ applicable requirements

Condition XIII.A.6. contains the opacity limitation for new sources (emergency generators) from 9 VAC 5-50-80 and 290, New Source Standard for Visible Emissions.

**Monitoring, Testing, Recordkeeping, and Reporting**

Conditions XIII.A.2 – 5. include the requirements for monitoring, testing, recordkeeping, and reporting requirements from NSPS IIII and MACT ZZZZ for the emergency generators.

Conditions XIII.B.1 and 2. include the opacity periodic monitoring from the generator stacks.

MACT standards include sufficient monitoring, recordkeeping, and reporting requirements to satisfy monitoring requirements.

**EMISSION UNIT APPLICABLE REQUIREMENTS – XIV National Emissions\Standards for Hazardous Air Pollutant Area Source Standards-Fabricated Metals Products – (MACT XXXXXX)**

Condition XIV include requirements for management practices, monitoring, notifications, recordkeeping, and reporting requirements for equipment subject to the National Emissions\Standards for Hazardous Air Pollutant Area Source Standards-Fabricated Metals Products – (MACT 40 CFR 63 Subpart XXXXXX).

**GHG**

Based on the application, B&W emits less than 25,000 tons of GHG per year and reporting requirements do not apply. There are no applicable GHG permitting requirements[4].

**Streamlined Requirements**

None

**GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

4 The $CO_2$ equivalent emissions from the 2 boilers are 37978.1 tons/yr (26.5 MMBtu/hr x 163.6 lb $CO_2$e/MMBtu x 8760 / 2000 x 2).

**Comments on General Conditions**

**B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §§2.1-20.01:2 and §10.1-1185 of the *Code of Virginia,* and the "Department of Environmental Quality Agency Policy Statement No. 2-2003".

**F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

**J. Permit** Modification

This general condition cites the sections that follow:
9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
9 VAC 5-80-190. Changes to Permits.
9 VAC 5-80-260. Enforcement.
9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

**U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

**Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of

Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:
40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.
40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.
40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:
9 VAC 5-60-70. Designated Emissions Standards
9 VAC 5-80-110. Permit Content

**STATE ONLY APPLICABLE REQUIREMENTS**

There are no state-only requirements.

**FUTURE APPLICABLE REQUIREMENTS**

There are no known future applicable requirements.

**INAPPLICABLE REQUIREMENTS**

NSPS Dc does not apply to the boilers, since they were constructed before June 9, 1989.

Two fuel oil tanks (EU-TANK-91 and EU-Tanks-92) hold 12,000 gallons of fuel each. NSPS Kb only requires that records of the design capacity and dimensions of the tanks be kept on-site for the life of the tanks.

MACT Subpart T National Emission Standards for Halogenated Solvent Cleaning. There are no MACT Subpart T units at the facility. B&W uses detergent cleaners in the washers. Material wiping is performed with citrus based cleaners which contain VOCs but no HAPs or halogenated materials and isopropyl alcohol.

MACT Subpart MMMM - National Emission Standards for Hazardous Air Pollutants Surface Coating of Miscellaneous Metal Parts and Products does not apply, because B&W is not a major source for HAPs. Also, the coatings used in the paint booth do not contain HAPs.

MACT Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters does not apply since B&W

is not a major source of HAPs.

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A 3 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

**COMPLIANCE PLAN**

A compliance plan is not required.

**INSIGNIFICANT EMISSION UNITS**

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

See permit Condition XV.

Note: EU-BA-1 is an existing 0.67 MMBtu/hr natural gas fired boiler and is not subject to MACT JJJJJJ, since it burns only natural gas (40 CFR 63.11195 (e)).

Note: The LLR sludge drying system (Eu-W-4) is not subject to NESHAPs 40 CFR 61 Subpart E –National Emission Standard for Mercury, because it does not meet the definition of a sludge dryer. Subpart E defines a “Sludge Dryer” as a device used to reduce the moisture content of sludge by heat to temperatures above 65º C directly with combustion gases. The B&W sludge dryer system is designed to heat the sludge by radiant infrared energy and not by combustion gases.

The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

## CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

## COMPLIANCE ASSURANCE MONITORING (CAM)

In accordance with the requirements of 40 CFR 64, Compliance Assurance Monitoring (CAM), a review for Cam has been completed. The following three conditions must be met for an emissions unit to be subject to CAM are:

1. emits or has the potential to emit (in the absence of add-on control devices) quantities of one or more regulated air pollutant that exceed major source thresholds,
2. is subject to one or more emissions limitations for the regulated air pollutant(s) for which it is major before control, and
3. uses a control device to achieve compliance with one or more of these emission limitations.

B&W does not have any emissions units that have a potential to emit major quantities of one or more regulated pollutants (in the absence of add-on control devices) and that uses a control device. Therefore, there are no emissions units subject to CAM at B&W.

## PUBLIC PARTICIPATION

The proposed permit will be place on public notice in The NEWS & ADVANCE from ***2013 to ****2013.